

IN THE CLAIMS

1. (currently amended) An imaging system comprising:
  - a radiation source configured to generate a beam;
  - a pre-patient collimator configured to collimate the beam to generate a collimated beam; and
  - a detector configured to detect the collimated beam, wherein the pre-patient collimator is configured to reduce a curvature of an x-ray beam profile formed on the detector, and the pre-patient collimator is one of:
    - a first collimator with a curved contour proportional to a contour of the detector;
    - a second collimator with blades, wherein slopes of two oppositely-facing surfaces of at least one of said blades are different from each other; and
    - a third collimator having at least two sets of plates, wherein said plates in a set pivot with respect to each other.
2. (original) An imaging system in accordance with Claim 1 wherein said curved contour of said first collimator and said contour of said detector are concentric.
3. (original) An imaging system in accordance with Claim 1 further comprising:
  - a linear drive mechanism configured to form an aperture of said first collimator, wherein the aperture has a size; and
  - a piezo-electric drive mechanism configured to change the size of the aperture of said first collimator.
4. (withdrawn) An imaging system in accordance with Claim 1 wherein said blades of said second collimator are configured to form an aperture having one of

a first size, a second size, and a third size, wherein the first size is greater than the second size and the second size is greater than the third size.

5. (withdrawn) An imaging system in accordance with Claim 4 wherein said blades of said second collimator include outer surfaces tapered to form the aperture of the second size.

6. (withdrawn) An imaging system in accordance with Claim 4 wherein said blades of said second collimator include inner surfaces tapered to form the aperture of the first size.

7. (withdrawn) An imaging system in accordance with Claim 1 wherein at least one of said blades of said second collimator include a slit.

8. (withdrawn) An imaging system in accordance with Claim 1 wherein said plates in each set pivot about a pivot point and wherein each set of plates is configured to be driven by applying a force at said pivot point to change a width of an aperture formed between said sets.

9. (withdrawn) An imaging system in accordance with Claim 1 wherein each set of plates is configured to be driven by applying a force at edges of each set to change a slope of an aperture formed between said sets.

10. (currently amended) An imaging system in accordance with Claim 1 wherein said pre-patient collimator is located between a subject and said radiation source.

11. (currently amended) A computed tomography imaging system comprising:

an x-ray source configured to generate a beam;

a pre-patient collimator configured to collimate the x-ray beam to generate a collimated x-ray beam; and

a detector configured to detect the collimated x-ray beam, wherein the pre-patient collimator is configured to reduce a curvature of an x-ray beam profile formed on the detector, and the pre-patient collimator is one of:

a first collimator with a curved contour proportional to a contour of the detector;

a second collimator with blades, wherein slopes of two oppositely-facing surfaces of at least one of said blades are different from each other; and

a third collimator having at least two sets of plates, wherein said plates in a set pivot with respect to each other.

12. (original) A computed tomography imaging system in accordance with Claim 11 wherein said curved contour of said first collimator and said contour of said detector are concentric.

13. (original) A computed tomography imaging system in accordance with Claim 11 further comprising:

a linear drive mechanism configured to form an aperture of said first collimator, wherein said aperture has a size; and

a piezo-electric drive mechanism configured to change the size of said aperture of said first collimator.

14. (withdrawn) A computed tomography imaging system in accordance with Claim 11 wherein said blades of said second collimator are configured to form an aperture having one of a first size, a second size, and a third size, wherein the first size is greater than the second size and the second size is greater than the third size.

15. (withdrawn) A computed tomography imaging system in accordance with Claim 14 wherein said blades of said second collimator include outer surfaces tapered to form the aperture of the second size.

16. (original) A computed tomography imaging system in accordance with Claim 14 wherein said blades of said second collimator include inner surfaces tapered to form the aperture of the first size.

17. (withdrawn) A computed tomography imaging system in accordance with Claim 11 wherein at least one of said blades of said second collimator include a slit.

18. (withdrawn) A computed tomography imaging system in accordance with Claim 11 wherein said plates in each set pivot about a pivot point and wherein each set of plates is configured to be driven by applying a force at said pivot point to change a width of an aperture formed between said sets.

19. (withdrawn) A computed tomography imaging system in accordance with Claim 11 wherein each set of plates is configured to be driven by applying a force at edges of each set to change a slope of an aperture formed between said sets.

20. (currently amended) A method for reducing dosage of radiation incident on a subject, said method comprising:

transmitting a beam of radiation toward the subject;

collimating the beam of radiation before the beam reaches the ~~subject~~;  
~~and~~subject;

detecting, ~~by a detector~~, the collimated beam of radiation, wherein the collimating is performed by one of:

a first collimator with a curved contour proportional to a contour of a detector that detects the collimated beam;

a second collimator with blades, wherein slopes of two oppositely-facing surfaces of at least one of said blades are different from each other; and

a third collimator having at least two sets of plates, wherein said plates in a set pivot with respect to each ~~other~~other; ~~and~~

reducing a curvature of an x-ray beam profile formed on the detector by performing the collimating the beam of radiation.

21. (new) An imaging system in accordance with Claim 1 wherein the pre-patient collimator is configured to reduce the curvature during formation of a variety of sizes of apertures between a plurality of cams of the pre-patient collimator.